WHAT IS CLAIMED IS:

2 . A method for forming a cap without draft allowance comprising the steps	ps as	?	1. A method for for	orming a cap without	draft allowance	comprising the step	s as
21. At method for forming a cap without draft anowance comprising the steps	ps as	2	A. A method for for	orming a cap without	draft allowance	comprising the step	s as

follow: 3

forming a metal mold constructed of a female portion, a male portion and a 4 5 cylinder, an impression with a shape substantially equal to that of the cap and defined between the portions and the cylinder connected to one of the portions and 6 7 communicated with the impression through an injecting passage, wherein each portion 8 has a hardness in a range H_{RC} 45 to 50, a heat treatment is applied to a surface of each

portion to increase a hardness of the surface of the portion to H_{RC} 70 with a depth 0.25 mm and a smoothness of the surface of the half is 800µ;

feeding molten material into the cylinder, wherein the molten material has a temperature between 650 and 680 °C;

injecting the molten material into the impression, wherein the cylinder forces the molten material into the injecting passage at a low speed, 1.5 m/s (meter per second) firstly, the molten material is then forced into the impression at a speed 4.5 m/s, and the cylinder provides a pressure about 220kg/cm² to the molten material to increase the density of the molten material; and

cooling the molten material with cool water to solidify the molten material, wherein the molten material is cooled to between 180 and 200 °C in 20 to 25 seconds, and the molten material solidifies to a cap with a desired shape without draft allowance.

- 2. The method as claimed in claim 1 further comprising spraying an isolating agent onto an inner surface of the impression before the molten material is fed into the cylinder.
- 3. The method as claimed in claim 2, wherein the agent is a mix of 10% ester, whotstep

9 12 13

14

16

17

18

19

20

21

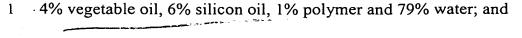
22

23

2/

31

7



the agent is diluted with water at a ratio 1:120 when the agent is used.

4. The method as claimed in claim 1, wherein the mold has an air chamber communicating with the impression; and

the air chamber is connected to an air pump to exhaust air from the impression and the air chamber when the molten material is forced into the impression.

5. The method as claimed in claim 1, wherein each portion of the metal mold is made of SKD 61 alloy tool steel.